nounced tendency to latent infections. Furthermore, epidemiologic observations indicate that, as a rule, the beginners in the parrakeet raising trade contract the disease. In fact, in California, 38 per cent of the reported cases of human psittacosis developed in the owners of large or small parrakeet aviaries or in their families. Why these two pet-shop owners, who had handled sick and diseased birds for many years, failed to acquire complete protection is indeed an intriguing question. By comparison, it is evident that the two patients possessed a certain degree of resistance, since they recovered, irrespective of their ages (sixty-five and sixty-two). Furthermore, it is not unlikely that the resistance against psittacosis is probably not absolute, but is conditioned by factors concerning which very little is known. In fact, it is probable that the striking resistance of many young and middle-aged individuals who may handle infected psittacine birds with impunity is nonspecific. It may be the expression of a hereditary conditioned nonsusceptibility which may gradually diminish with age. The complement fixation tests indicated that Mrs. C., who had a relatively mild infection, elaborated abundant antibodies in her blood serum, while the husband, tested during his convalescence, produced no immune substances. With the aid of these and similar tests, it is anticipated that some of the mooted questions relative to the immunity in psittacosis may be clarified.

2. Epidemiologically the Santa Barbara cases furnished ample evidence concerning the unreliability of testimony collected during the illness of the parties involved. Four independent investigators had been assured that the pet-shop owner, who had voluntarily discontinued the sale of parrakeets in 1932, had not purchased any tropical birds in recent months. Since he had nursed for several months a supposedly sick Petz conure, suspicion was directed to this bird and in a spell of hysteria the daughter killed the bird without affording the investigators an opportunity to study the clinical symptoms. Since this conure was found to be free from psittacosis, both anatomically and by animal tests, the pet-shop owner, who by that time had recovered, was interviewed again. He then admitted the purchase of the Amazon parrot from an itinerant peddler on May 10, 1935. At the time of the purchase the cage of the peddler housed two live and one dead parrot. Notwithstanding this fact the purchase was made. On June 20 (five weeks later) the patient, who had been ill for a week, consulted his physician.

3. Investigations by no means completed failed to establish the origin of the Amazon parrot and the source of the infection. It is not unlikely that the bird entered the country illegally.

4. At the time the Amazon parrot was autopsied (July 19, 1935, eight weeks after the onset of the illness) the cloacal content and the nasal mucosa proved to be noninfectious. However, comparative tests indicated a striking concentration of the virus in the kidneys. This and similar observations made on other birds strongly support the belief that the virus leaves the bodies of the birds through contamination of the cloacal content with highly infectious urine.

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Report of Case (Reference to Illness of Doctor Hasseltine, United States Public Health Service).—In addition to the above discussion of Doctor Steele's report of cases, another case of infection of special interest to Californians is reprinted from the *Journal of the American Medical Association* (issue of August 31, 1935, page 727).

Owing to lack of funds, the State Board of Health found it necessary to close the psittacosis laboratory in Pasadena. The United States Public Health Service had detailed Doctor Hasseltine to coöperate in the State investigations. The item referring to his illness from psittacosis follows:

DOCTOR HASSELTINE ILL WITH PSITTACOSIS FOR SECOND TIME

Dr. Hermon E. Hasseltine, United States Public Health Service, is ill in San Francisco with psittacosis. This is the second time that Doctor Hasseltine has had the disease, the first attack having occurred in 1930 in Washington, where he was making laboratory studies of the epidemic that then prevailed. For three years Doctor Hasseltine was in charge of the psittacosis laboratory of the public health service at Pasadena, which was closed several months ago. He was then detailed to San Francisco to make a study of bubonic plague. While he has not been in contact with parrots recently, it is believed he acquired the infection in Pasadena, July 10, from instruments used in previous studies, which he handled while packing them for shipment. He became ill July 25 and on July 28 was admitted to the marine hospital. He is now much improved. So far as the public health service is informed, this is the only instance of psittacosis occurring a second time of which there is record. In March, 1930, Doctor Hasseltine suffered a moderately severe infection with psittacosis apparently acquired at the National Institute of Health, although definite history of his contact with infected birds could not be traced. His illness occurred at the time that ten other persons connected with the institution were infected. Two of this group were in direct contact with infected birds, but the means of transmission of the disease was not determined in the other cases. Doctor Hasseltine has been with the public health service for twenty-six years.

PSITTACOSIS IN AUSTRALIA

By K. F. MEYER
San Francisco

QUITE recently Dr. F. M. Burnet kindly sent a summary of his detailed studies on psittacosis established in the Australian parrots. In a previous publication (*The Medical Journal of Australia,* December 8, 1934, p. 743) he conclusively demonstrated that the red-backed parrots (Psephotus

TABLE 1.—*Psittacosis in Australian Parrots*

Genus and Species	Proved Psittacosis	Enlarged Spleen without virus	Normal Spleen	Total
Lorikeets (Trichoglossus)	7 (58%)	2 (17%)	3 (25%)	12
Cockatoos (Kakatoe)	3 (6%)	10 (21%)	34 (72%)	47
Cockatiel (Leptolophus)	6 (60%)	0	4 (40%)	10
Rosellas (Platycercus)	5 (5%)	19 (18%)	84 (78%)	108
Grass Parrakeet (Psephotus)	28 (41%)	0	40 (59%)	68
Budgerigar (Melopsittacus)	1 (5%)	1 (5%)	19 (90%)	21
Grand total	50 (18.2%)	32 (12%)	184 (70%)	266

haemotonotus), rosellas (Platycercus eximius) and cockatiels (Leptolophus hollandicus), with enlarged spleens (8 to 10 millimeters in diameter), were infected with the virus. Ten of twelve grass parrakeets purchased from a Melbourne dealer were carriers of psittacosis. Another paper on "Enzoötic Psittacosis in Wild Australian Parrots" will appear in the *Journal of Hygiene,* but Doctor Burnet has given permission to use the data sent to me. For the sake of brevity, the essential facts are condensed in Table 1.

A very high proportion of the lorikeets, cockatiels, and grass parrakeets are, obviously, infected in the wild state. The virus strains which have been isolated appear to be less virulent than the strains obtained from, and responsible for the human cases in the European and American outbreaks of 1929-1930. However, despite the prevalence of the virus, only three instances in which human infections might be suspected have come to the attention of the authorities. The investigations are still in progress.

Hooper Foundation.

ROENTGENOLOGIC EXAMINATION OF THE STOMACH AND DUODENUM—SELECTION OF PATIENTS*

By B. R. KIRKLIN, M.D.
Rochester, Minnesota

AMONG the difficult decisions often required of the clinician is that of determining whether or not certain patients should be subjected to roentgenologic examination of the digestive tract. It is to be hoped that the day will come when this test will be applied in every instance in which it might by any chance afford diagnostic aid; but by reason of economic and other considerations its employment as a routine is now seldom practicable.

TENDENCIES IN PRESENT METHODS OF EXAMINATION

Under present conditions, the tendency is to request this method of investigation only when symptoms and signs of disease are pronounced and more or less diagnostic. In such cases roentgenologic study is solicited to furnish objective confirmation of the clinical opinion, and to show the exact site, extent, and hidden complications of the lesion. Unfortunately this plan does not provide for patients whose complaints are vague, trivial, or atypical, but who, nevertheless, have organic disease, sometimes of grave character. This is especially true of early gastric carcinoma which, unless obstructive, often gives rise to such slight clinical manifestations that existence of the disease is not likely to be considered, and unless roentgenologic aid is invited the lesion will probably escape discovery until effective treatment is no longer possible.

GASTRIC SYMPTOMS AND GASTRIC LESIONS

Practitioners have learned that gastric symptoms rather seldom imply organic disease of the stomach, and that perhaps nine times in ten such complaints are either purely functional or due to affections elsewhere than in the stomach. Indeed, there is danger that the clinical diagnostician may become so keenly aware of this fact that he will overlook the gastric lesion in the tenth case. At all events, he will find it well worth while to insist on roentgenologic examination whenever the clinical data are potentially significant of organic disease in the digestive tract, even though the symptoms and signs are single, petty, anomalous, or illogically associated, if they are persistent or recurrent, and if their cause has not been found. Among such manifestations are anemia, loss of weight, nausea and vomiting, hemorrhage, epigastric pain related to food, and a varied assortment of slight or eccentric abdominal symptoms that seem to have no logical basis. I shall present a few cases that illustrate the advisability of regarding those manifestations as signals for examination with roentgen rays. It will be understood that I am not a clinician, that the cases were taken from the files of the roentgenologic section, and that the reasons which impelled the clinical consultant to request the examination were not learned until after it had been made.

ANEMIA AS A GASTRIC SYMPTOM

Anemia without other patent manifestations has such a varied genesis that to determine the cause in a specific instance may require extensive search. Although the more common sources should be considered first, time is often lost in canvassing them repeatedly and ignoring the less common causes. Among the latter, primarily benign polypoid neoplasms of the stomach deserve especial note, for they almost invariably become eroded and anemia results from the steady loss of blood. Usually they are relatively small, and rarely is it possible to discover them without the roentgen rays. Although actual metamorphosis of benign into malignant newgrowths has not been observed, it is known that malignant areas are often found in gastric tumors that are otherwise essentially benign, and that malignant neoplasms may succeed or accompany benign newgrowths. Hence, there is reason to believe that a diagnosis of benign tumor is sometimes equivalent to a diagnosis of early carcinoma. At the clinic every patient having anemia without known cause is sent for roentgenologic examination of the alimentary canal. That this routine is warranted is shown by the following cases:

REPORT OF CASES

CASE 1.—Eighteen months before coming to the clinic, a woman, aged fifty-four years, noted increasing pallor and weakness. Several months later she went to her physician, and a roentgenologic examination of the stomach and colon was made, but the results were negative. Her physician prescribed large doses of liver extract and ventriculin, and the patient gained ten pounds (4.5 kg.). When she came to the clinic the value for hemoglobin was 31 per cent and the blood picture was that of pernicious anemia. Roentgenologic examination of the stomach disclosed an

* From the Section on Roentgenology, The Mayo Clinic, Rochester, Minnesota.

Read before the General Surgery Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13-16, 1935.